PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Forging a new identity: a qualitative study exploring the experiences of UK-based Physician Associate students.
AUTHORS	Brown, Megan; Laughey, William; Tiffin, Paul; Finn, G

VERSION 1 – REVIEW

REVIEWER	Tamara S. Ritsema PhD George Washington University, USA and St. George's, University of London, UK
REVIEW RETURNED	28-Aug-2019

GENERAL COMMENTS	This is a very interesting piece of qualitative work that adds to the literature. The methods are appropriately done, although it is interesting that this work was done in a part of the country where there is not a substantial PA presence. In the West Mids, London and Kent/Surrey/Sussex, you may have seen substantially different results as PA students there frequently do their clinical placements with PAs who have 5-10 years experience in post. Concerns: 1. Page 3, line 27 states that “PA courses are run by UK medical schools”. Unfortunately, this is not true. Almost ½ of UK PA programs (Anglia Ruskin, Bangor, Bournemouth, Brunel, Bucks New, Canterbury Christchurch, East Anglia, Edge Hill University, Herts, Reading, Sheffield Hallam, Wolverhampton, Worcester, Ulster) are in universities which do not have a medical school. Please change this to reflect the true scope of PA education. 2. Page 3, line31 – this sentence needs more clarity. First, I am confused that you say that 1000 more PAs were promised in 2015 AFTER you say that there were 260 PAs in 2016. I believe what you mean is that Jeremy Hunt promised more PAs (and he promised them specifically for the GP setting) by 2020. Please make it clear that 2020 is the time frame he promised. Also, I would encourage you to look at FPA data to see what percentage of all PAs work in GP. Clearly, the numbers Hunt projected will not be met b/c the majority of PAs are not going into GP. 3. Page 4, first paragraph – I am not as convinced as you are that HEE is going to be the source of professional identity formation. What about the hundreds of PAs who are already working? Doesn’t their work and their experience inform the development of the PA role? I think it should even inform what HEE might be trying to attempt with their career framework. I would encourage you to account for the >10 years of experience of UK-trained PAs and not just for the committee work of HEE. A group can write what they

	think the role should become, but the role is substantially developed by those enacting daily for many years it in surgeries and hospitals. 4. Page 5 – Conceptual framework, first paragraph - I am very surprised that the authors did not address the issues of PA students often needing to CHANGE their professional identity. Many programmes require students to have clinical experience. So PA students are not only forming a new identity as a PA, they are shedding their old identity as a paramedic, nurse, respiratory therapist, social worker, etc. In my experience as a PA educator, I see students who really struggle to develop a new identity because they hold their previous identity so tightly. For example, we often have difficulty getting students who use to work for the ambulance service to shed their attachment to algorithms and protocols. In PA education, we are trying to teach the pathophysiology that was behind the protocol. They need to be able to evaluate when the protocol is correct and when it is actually potentially hazardous to the patient. I am also a bit concerned about the comparison with medical students in this paragraph. Medical students are typically 18-23 years old. The youngest PA students are at least 22 at entry because the programmes require a first degree. PA students have generally made an affirmative choice to become PAs after pursuing another degree. My impression is that medical students are often students who were very clever and who were encouraged to go into medicine because they were able. We are seeing a lot of junior doctors leave medicine, and I do wonder if it is partly because they chose medicine at age 17. PA students are those who chose a new profession after completing a previous degree – I believe they are more intrepid and are more likely to have a risk-taking personality (in a good way) than sixth form students who chose medicine because it is a well-known profession. I would encourage the authors to put a bit more nuance into the comparison of medical students and PA students both on the issue of previous experience and on the issues of age/ maturity / differences in those who chose a new vs an established profession. 5. Page 10, line 26 – The quote here is so generic that I don't think it really supports the authors' interpretation. "I think the first year, everything was overwhelming" doesn't specifically speak to identity. It could be that the student was overwhelmed by sitting in class 8 hours per day. Or they were overwhelmed by the demands of the pharmacology module. Or the demands of a 45 minute bus ride to uni each day. If there is more to the quote is written here, I would encourage the authors to include the pieces that point to identity. Othewise, this part should be deleted. 6. Page 11, Message 1 – I would encourage the authors to have a look at the proposed accreditation standards for UK PA programmes. At least in the original iteration, the standards required courses to have a PA on the academic staff, explicitly to be a good role model for the students. That PA can also be a model of the role for others in the medical community in the area, smoothing the way for students as they go onto placement. 7. Page 11-12, Message 2 – The authors discuss the paper on doctor satisfaction with the PA role, but then say that other evidence says that more evidence suggests PAs encounter negative attitudes

	in the workplace. This is not an apples-to-apples comparison. The study on doctor satisfaction only surveyed doctors who directly worked with PAs on a daily basis, whereas the other work talked about the broader context (doctors who didn't work directly with PAs, other allied health staff, doctors who had only heard about PAs in the media). I suspect that if the authors of the first study had asked the doctors (and the PAs with whom they work) if there were any "negative attitudes in the workplace", they would have heard an overwhelming yes. The Williams study was conducted specifically to counter the idea in social media that "doctors don't like PAs" by asking those who actually worked with PAs, not those who just heard of them or encountered them. So, be a little bit more nuanced in your discussion here. I bet nurses and doctors also regularly "encounter negative attitudes in the workplace". Clarify who is generating these negative attitudes and what their degree of direct experience with PAs is. 8. Page 12, Message 3 – Many PA programmes are choosing to place all of there students in one hospital or trust to promote a sense of community and to accelerate the spreading of the message about the PA role. Were the students in this study sent to many different trusts? I suspect if you intereviewed students who had primarily done their placements at the Queen Elizabeth in Birmingham, St. George's or Bart's in London or Redhill, you would find quite a different experience. I think the idea of sending students to one trust is much more practical than the idea of eliminating the rotation between services that is key for getting students a generalist medical education. 9. Page 12, Message 4 – This first paragraph is not at all supported by your data. You say 'role models currently available to student PAs have done more harm than good", yet there is nothing in your data that discusses that. All your quotes suggest an absence of role models is hard for the students, but none of your quotes (p 9) support the idea that the existing PA role models HARMED the students.

REVIEWER	Pauline Joyce RCSI Dublin Ireland
REVIEW RETURNED	09-Sep-2019

GENERAL COMMENTS	This is a well written paper, easy to follow with a clear methodology. It is a very interesting topic and very relevant at this time when the number of PAs being introduced to the UK is rapidly increasing. No edits suggested.

REVIEWER	Oren Berkowitz, PhD, PA-C Ariel University, Ariel, Israel
REVIEW RETURNED	11-Sep-2019

GENERAL COMMENTS	This is a welcomed qualitative study on PA student professional identity formation in the context of mostly PA-naive environments of the UK. it is important to note that there are institutions that have been educating and employing PAs for over a decade but due to the recent rapid expansion of PA programs in the UK, there are likely to be many PA-naive integrations occuring in the near future. There is not much information on this topic of PA student professional

	identity, particularly outside of the USA, and I support the publication of this research. I have several comments that the authors might address. The article is long. It is understandably the nature of qualitative research to have a lengthy results section but I do believe that the manuscript can be shortened overall. There are several digressions into background and theoretical explanations that could be removed without harming the authors' message. It would improve clarity and readability. For example, the lengthy description of the conceptual framework within the methods section could be synthesized and it is not necessary to overly explain grounded theory qualitative research (there are several other examples of this throughout the paper but i won't go into each one). Many of the readers will be familiar with the context and concepts brought forward in this article and it is unnecessary to explain exceedingly. It was not clear in what year the study was performed and how long it took to collect data. This is particularly relevant in the context of UK PA development. Again, PAs have existed in the UK for years but only in very small numbers until a recent rapid expansion of programs. The authors should provide more context about the PA schools including number of PA students per year and urban vs. rural environment. Authors state that no previous work has been done on PA professional identity development but I believe that more credence should be given to the early work of researchers in the USA such as Prof. Eugene Schneller and authors should consider reviewing and referencing work such as (Schneller ES. The Physician's Assistant: Innovation in the Medical Division of Labor. Lexington Books; 1978.) The PA programs studied are both in medical schools. It can be assumed that professional identity development begins in the classroom. There has been a long standing discussion and debate among PA educators in the USA about how much PA programs should be integrated into medical schools or remain as distinct entities. This discussion has been much about professional identity development, among other things. To be clear, the majority of USA PA programs maintain a high degree of separation from their medical school curriculum with only two programs (Iowa University and Boston University) achieving majority integration. The impact that medical school integration has on PA professional identity development is unclear but it has been a long debate and the authors should consider presenting this argument and analyzing it within the context of this research study, especially since one of the key findings is that some PA students begin to model the doctors' professional identity.

REVIEWER	Kelly Donkers Chatham University Pittsburgh, Pennsylvania, United States
REVIEW RETURNED	12-Sep-2019

GENERAL COMMENTS	I would just recommend more clarity on the questions that were asked and how they were chosen. There are topics that cover what was reviewed, but not specifically what was asked. If one were to repeat the study, would need to have the exact questions that were asked of the participants.

	This article is interesting to read as a United States Physician Assistant of over 20 years. Many of the same topics have been a part of the identity formation of US PAs. Would recommend collaboration with US PAs for guidance moving forward with the profession in the UK. Additional study as there are more Physician Associates and perhaps a professional organization for them will be interesting to track.

REVIEWER	Anita Duhl Glicken Associate Dean and Professor Emerita, University of Colorado Anschutz Medical Center USA
REVIEW RETURNED	14-Sep-2019

GENERAL COMMENTS	Overall, this paper represents an important contribution to emerging literature on the integration of the PA profession in the UK. Having participated in leading PA integration in other countries, the issues identified appear to be universal, consistent with early research studies of role formation conducted in the US. A few questions remain, however, as I review this work. Did you seek literature from other countries on this topic? It might have been interesting to note similarities or differences in this regard. At times I found myself questioning some of the conclusions, particularly related to role dissonance, which was a significant part of the discussion. With only 19 subjects, how many of the 19 identified with "putting on a mask". Descriptors of some, often, etc. are not as helpful to me as a reader compared to "the majority" of "few" or "more than half". Having taught in medical schools and PA programs for many years, this type of "impersonation" is typical of many students during an early phase of professional development. I would question whether some of what you identify as a "crisis" is fairly typical of early role formation. I appreciated the introduction of theory around "communities of practice" albeit somewhat data, we are seeing a reemergence of this theory as we explore transformational models that integrate all members of a care team to work together on patient management and decision-making, redefining and expanding roles to include acting as members of an interprofessional care team. Congratulations on producing this bench mark in the journey of establishing a new profession. Albeit 50 years out in the US, very few have any interest in the early research studies, they serve a valuable purpose in creating an evidence-based and narrative for the profession and future research.

VERSION 1 – AUTHOR RESPONSE

Reviewer one

• Reviewer one highlighted an inaccuracy on Page 3, line 27 that states “PA courses are run by UK medical schools”. This statement doesn’t account for institutions running PA courses which do not have a medical school. This statement has been removed from this research report.

• Reviewer one pointed out that Page 3, line 31 required more clarity regarding governmental PA recruitment targets, particularly for general practice. This section has been altered to rephrase the point made and add clarity. Specifically, the general practice context and time frame of governmental targets have been added. This section now reads: 'In 2016 there were 260 PAs and 550 PA students across England and Scotland, with 1000 more PAs promised by the Secretary of State for Health

within general practice by 2020/21'. As advised, detail has also been added regarding the amount of PAs actually working within and being recruited to general practice, to add context to these targets. The following sentences have been added, referencing recently released workforce statistics by NHS Digital : 'Although PA training places are increasing, this recruitment target for general practice looks to be overly optimistic- in March 2019, there were 194 PAs working in general practice (167 full-time equivalent or FTE PAs) and, although an additional 97 FTE PAs were employed between 2018 and 2019, this figure and pattern of growth will likely still fall short of governmental targets. Although PA training places are increasing, 72% of qualified PAs still work within secondary care.' This paragraph has also been reordered in light of this additional information to add clarity and a logical flow to the points made.

• On page 4 within the first paragraph reviewer one highlighted the statement 'The work of HEE may be crucial' when discussing identity development for both student and working PAs. Reviewer one put forth this statement fails to pay heed to the experience of working PAs in developing an identity model and career framework for the profession. We agree with this comment and have rephrased to reduce the emphasis on HEE's role in providing insight into PA identity development. What once read: 'The work of HEE may be crucial' now reads ''Further investigation regarding PA professional identity is crucial.' We hope this now reflects the broader need for both organisational and professional input in investigating PA identity development.

• Within the conceptual framework, reviewer one highlighted the lack of reference to the fact student PAs often tightly hold another clinical professional identity, which may make assimilating another professions' identity difficult. This is an interesting point and we have added this to the literature included within the conceptual framework section to this work. With reference to wider occupational literature, we discuss how a process of identity transformation may need to occur and detail the theoretical perspective on what this process may look like within both a community of practice and the process of socialisation. Please see the red text changes within the conceptual framework section of this work for more detail.

• The quote on page 10, line 26 ('I think the first year, everything was overwhelming) within the results of this work was highlighted as not supporting the interpretation made by our research team. We agree this quote had been overly redacted (in an attempt to reduce the word count of the article). We have added more of the original quote to this section, and hope it now explains how we reached our interpretation that this represents students grappling with their identities early in the course. The quote now reads: "I think in first year; everything was a bit overwhelming... I was second guessing or doubting myself. So that was my problem at first, I had so much doubt in everything I was doing… having sleepless nights whether I've actually done the right thing…signing up."

• Within message one of the discussion, the reviewer suggests reviewing the proposed accreditation standards for UK PA programmes which, 'at least in the original iteration' require courses to have a PA on the academic staff as a role model to students. After much searching online, none of the authors were able to locate the accreditation standards. The Faculty of Physician Associates website was reviewed in detail, and the competence and curricular framework for courses reviewed. Within this framework document published online, it states full accreditation standards would be published as an appendix, but this does not seem to have been the case. We reached out to senior PA faculty within our own institutions and at other institutions, including members of the PA schools council and the council chair. They were able to confirm that accreditation standards are not currently published, or a requirement for institutions yet. These faculty were able to further explain these standards did not look likely to be published in the near future. In light of this, we have not been able to reference any accreditation standards for PA courses. Despite this, we feel accreditation standards would be a useful way of providing guidance on role models for PA courses, as reviewer one has mentioned. We have added the following sentences to the end of message four of the discussion, where we discuss role models. We feel this is a more natural place to discuss accreditation standards than within message one. The additional sentences read: 'Publication of national accreditation standards for PA studies courses stipulating the need for adequate PA role model exposure could also help. Such accreditation standards have yet to be formally published but could provide clear guidance to

institutions on best utilising PA role models.'

• Reviewer one suggests adding nuance to the discussion regarding doctor satisfaction with the PA role. We have reviewed these references and acknowledged the fact that the Williams et al study must be interpreted in light of the fact the research team only surveyed those with direct regular contact with PAs. The first paragraph of message 2 now reads: 'There is some evidence PAs encounter mostly positive attitudes whilst at work. In 2012, a survey of UK doctors who worked with PAs found that only 3.3% believed having a PA on their team did not work. However, this survey was conducted with doctors working directly with PAs on a regular basis and so must be interpreted within this context, understanding that exposure and awareness could impact perceptions. As PAs are still a relative minority within the workplace nationally, demonstrating largely positive attitudes through such work is likely not truly representative of wider occupational attitudes towards PAs.' As suggested by reviewer one, we have also clarified what we mean by negative attitudes in the context of this work and the wider literature by adding the following sentence: 'In this context, negative attitudes are defined as the perception of another's viewpoint from hostile comments or actions made within the workplace.' Throughout this paragraph several additions have been made clarifying the level of exposure to working PAs staff within the discussed studies had. When this exposure is unclearly delineated, such as in Drennan et al's work, this is discussed and caution regarding drawing conclusions advised. Detail regarding where negativity was found to stem from within our own research, and level of exposure to working PAs, has also been more clearly detailed: 'Despite this, our work adds contemporary weight to the claim negative attitudes regarding PAs exist within the workplace from a variety of healthcare professionals, although negativity from senior medical staff was most frequently described. Students most frequently portray such attitudes as coming from those with little to no previous experience of working directly with PAs. '

• Reviewer one highlighted the fact several institutions place students within one trust or hospital to help facilitate continuity. We are grateful for this insight and have added this as a suggestion of a potential way of helping facilitate continuity of clinical experience for students within message 3: It is important to note that there is a move within some institutions to place students at one trust where possible for the duration of their training to facilitate continuity (this was not the case at the institutions studied in this research). This may be one way of offering more continuity of clinical experience and fostering identity development.'

• Reviewer one highlights that the first paragraph within message four of this research is not supported by the data presented. Particular concern is raised over the inference that the role modelling situation has 'harmed' the students. The inference of harm here is from pushing student PAs towards medical student identity acquisition, due to role model type and access issues. Upon reviewing our data, we can see a stronger case needs to be made for this argument. Although we included quotes regarding aspirations in becoming a medical student, these were detailed within the 'dissonance' section of the results, not within the role modelling section. We looked back through our original data set to and have included more detail within the role modelling section of our results that we believe supports the interpretation that the current role models available to students encourage medical, not PA, identity acquisition. Please see the 'role modelling' sub-theme for more detail. Further to this, we have rephrased the section in question within message four to hopefully reflect our meaning more clearly. The word 'harm' has been removed and the paragraph restructured: 'Role modelling was mentioned frequently within interviews with student PAs. Although the bulk of previous literature portrays role modelling as a factor helpful in professional identity formation, student PAs were not as convinced. Students acknowledged the lack of PA role models and commented this deficiency made acquiring a professional identity more difficult. Furthermore, the purely physician role models currently available to student PAs have caused some student PAs to begin to think, act and feel like a doctor, not a PA. This may explain why so many students in our work were considering training as a doctor after their PA course ended. ' We hope this rephrasing better represents the meaning we were trying to draw out from our data.

Reviewer two

• We would like to thank reviewer two for their positive comments regarding this work.

Reviewer three
• Reviewer three suggests reducing the word count of this work, particularly in reference to the theoretical underpinning of the work. As suggested by reviewer three, the sections on grounded theory within this work have been reviewed and streamlined, with explanations of the methodology removed. The following sentence has been cut: 'This methodology aims to identify research problems from participant perspectives without imposition of a pre-formed framework - research problems are interpreted by the researcher, with an aim of forming new, emic theory.' The only other reference to grounded theory is within the methods section, when explaining the coding approach taken by this work. This has not been removed, as it feels important to include this detail in allowing for adequate interpretation of this work. Overall, the work has been re-read and attempts to cut the word count made. However, in light of other suggestions from reviewers suggesting additions to this work, and little additional detail given on what digressions exist that could be removed, the word count has slightly increased in order to adequately address reviewer comments. However, given the context of this manuscript we do believe the current word count to be warranted. The collected data are rich and any further reduction in word count would detract from the key messages of this work and fail to provide adequate context or theoretical basis for the proposed conceptual model.
• Reviewer three highlights that it is unclear in which year the study was performed and that context regarding the included institutions is lacking. This detail has been added within the ‘context’ subheading of the methods section.
• We thank reviewer three for signposting us to Prof. Schneller’s book: The Physician’s Assistant: Innovation in the Medical Division of Labor. We have reviewed this reference and added detail within the introduction to this work to pay adequate heed to the early research done in establishing the Physician Assistant role in America. The following sentences have been added: Early work from establishing the Physician Assistant role in America details the difficulties and conflict Physician Assistants sometimes faced in positioning themselves within the medical hierarchy, hinting that such positioning influences identity formation, with conflict acting as a negative influence.
• Reviewer three highlighted the ongoing debate within the USA regarding the integration of PA studies courses with medical studies courses and recommended evaluation of our findings in this context to add to our discussion. We have added a paragraph on this debate and what our findings add (paragraph 3, message 4, discussion section).

Reviewer four
• Reviewer four requested clarity regarding the questioning undertaken in this work. As the interviews were semi-structured in format, we have supplied the interview question stems used as conversational prompts in a supplementary table (supplementary table one). These are the topics that cover what was discussed but, as the interviews were semi-structured, fully-formulated questions cannot be supplied. The questioning centered around the provided interview stems and responded to the flow of the conversation, as opposed to following a structured interview protocol. The traditionally quantitative notions of objectivity and replicability do not generally apply to qualitative research (see: Varpio, L., & Meyer, H. (2017). A Lesson From the Qualitative Rip Out Series: Let Go of Expectations for Universally Applicable "Gold Standards" for Qualitative Research. Journal of graduate medical education, 9(2), 154–156. doi:10.4300/JGME-D-17-00014.1), and so we feel it wouldn’t be appropriate to attempt to describe this qualitative research in a way that pays heed to the notion of replicability.

Reviewer five
• Reviewer five questioned some of the conclusions related to role dissonance and asked for further clarification regarding the amount of students identifying ‘putting on a mask’ as something they felt they did within the PA role. We have tried to add clarity to this finding within the results section to our work, within the ‘identity crisis’ subtheme and have also added an additional quote from another

participant, where they liken their identity to a mask. We have not included specific numbers regarding how many participants reported their role felt like a mask, as methodologists advise assigning exact quantities to qualitative research goes against its epistemological nature (see: Varpio, L., & Meyer, H. (2017). A Lesson From the Qualitative Rip Out Series: Let Go of Expectations for Universally Applicable "Gold Standards" for Qualitative Research. Journal of graduate medical education, 9(2), 154–156. doi:10.4300/JGME-D-17-00014.1) We have added more nuance into our discussion of 'imposter syndrome' within message 5. Further background has been provided on the concept of identity dissonance. We have also added a paragraph acknowledging the possibility of student difficulty representing identity reconciliation as detailed by Wenger, not identity dissonance. On balance, however, we believe the professed timescale of our participants' identity struggles, the severity of their described struggles and little explanation of resolving these struggles suggest identity dissonance is most likely still at play, as opposed to the less distressing and transient identity reconciliation. We have added a sentence to our results to more clearly highlight the non-resolved nature of these difficulties. It is likely students travel through identity reconciliation before reaching identity dissonance or resolution and this may explain early student experiences. Please see paragraph 3 within message 5 of the discussion for further detail on identity reconciliation and identity dissonance. We have also added a recommendation to the 'directions for future research' section to this work regarding investigating the nuances and relationship between identity reconciliation and identity dissonance.

• We would like to thank reviewer five for their thoughtful review, and positive comments regarding our use of communities of practice theory.

VERSION 2 – REVIEW

REVIEWER	Tamara S Ritsema PhD George Washington University, USA and St. George's, University of London, UK
REVIEW RETURNED	02-Oct-2019

GENERAL COMMENTS	The authors have done a good job of addressing the majority of the concerns I raised in the first review. Well done. I look forward to seeing this paper in print.

REVIEWER	Oren Berkowitz Ariel University, Israel
REVIEW RETURNED	10-Oct-2019

GENERAL COMMENTS	I believe the authors have adequately addressed the edits and comments in this revised format. I thank them for their efforts. I believe this manuscript will be a valuable addition to the scientific literature. I would just suggest that the authors check reference #50 under message #4 because I don't think it fits the context (probably a typo error).

REVIEWER	Kelly Donkers Chatham University Pittsburgh, PA United States
REVIEW RETURNED	09-Oct-2019

GENERAL COMMENTS	I recommend that future research looks not only at students, but at practicing PAs in the country- who would have more of a sense of identity, to pass along to their student peers. The data collection seems somewhat arbitrary- I don't think one could reproduce the study because the questions asked are part of

	an open-ended discussion from what I understand. I think that all students should be asked the same questions, and if they were, those questions should be specifically identified. I understand that different themes come up during the course of the discussion and that is what was tracked, but there is no sense of the order and context of questions that students were asked- this should be included.

VERSION 2 – AUTHOR RESPONSE

Reviewer one

• We would like to thank reviewer one for their positive comments regarding the major revisions to this work.

Reviewer two

• We acknowledge and agree with the comment from reviewer two that future work should also focus on professional identity formation within working Physician Associates. We would like to draw attention to where we had already reflected this thought in the 'future directions' section of our work. We have highlighted the pertinent sentences in red text.

• Reviewer two raises the concern of replicability of questioning: 'The data collection seems somewhat arbitrary- I don't think one could reproduce the study because the questions asked are part of an open-ended discussion from what I understand. I think that all students should be asked the same questions, and if they were, those questions should be specifically identified.' As mentioned in the previous major revisions to this work, paying heed to the notion of replicability within qualitive research acts in contradiction to its underlying paradigm. The traditionally quantitative notions of objectivity and replicability do not generally apply to qualitative research (see: Varpio, L., & Meyer, H. (2017). A Lesson From the Qualitative Rip Out Series: Let Go of Expectations for Universally Applicable "Gold Standards" for Qualitative Research. Journal of graduate medical education, 9(2), 154–156. doi:10.4300/JGME-D-17-00014.1), and, as such, we feel it wouldn't be appropriate to attempt to describe this qualitative research in a way that pays heed to the notion of 'replicability' of questioning. Further to this, as the interviews were semi-structured in format, we are unable to detail exact questions asked, as one could give in a fully structured interview. Instead, we supplied interview question stems in our previous revision, used as conversational prompts in a supplementary table (supplementary table one). These are the topics that cover what was discussed but, as the interviews were semi-structured, fully-formulated questions cannot be supplied. The questioning centered around the provided interview stems and responded to the flow of the conversation, as opposed to following a structured interview protocol.

Reviewer three

• We would like to thank reviewer three for their positive comments regarding the major revisions to this work.

• Reviewer three highlights a potential discrepancy with reference 50 (Densen P. Challenges and opportunities facing medical education. Transactions of the American Clinical and Climatological Association. 2011;122:48.), within message 4. We have double checked this reference and it is the correct reference to support this point. The point supported by this reference from our manuscript is: 'Within the US debate exists as to whether to integrate Physician Assistant studies courses into medical school curricula. Overwhelmingly PA programmes remain separate entities, with only two programmes (Boston University and Iowa University) achieving majority integration.' Within reference 50, points are made within the 'discussion' section, structured as discourse between the authors of this commentary regarding the integration of healthcare professional education, e.g.: 'With regard to the question of: "How do you incorporate other healthcare professions?", at Iowa, we have been

educating medical students and physician-assistant students together for years, and have incorporated most of our health-science students into both the inpatient, and particularly the outpatient, settings.' We have provided a further reference to support the point we make regarding Boston University upon reviewing this reference, which strengthens the assertation that Boston University educate their PAs within the graduate medical school, now included as reference 51 (Boston University. Physician Assistant Program—MS. [Internet], November 2019. [cited 8 November 2019] Available from: https://www.bu.edu/academics/gms/programs/physician-assistant/).

Reviewer five comment from previous revision

• The editorial team asked for clarity regarding reviewer five's comment from our previous major revisions: '"Did you seek literature from other countries on this topic?". We did widen our literature search beyond the United Kingdom and hope this is reflected within the introduction to our work: 'Yet, while using doctor-based models risks harm in encouraging student PA identity development, there are no published papers to date examining professional identity formation within UK PA students. Even internationally, work investigating student PA identity is sparse. Early work from establishing the Physician Assistant role in the US details the difficulties and conflict Physician Assistants sometimes faced in positioning themselves within the medical hierarchy, hinting that such positioning influences identity formation, with conflict acting as a negative influence.30 Despite this, to the authors' best knowledge, detailed work is yet to be published studying identity formation within the development of the PA role on an international or national stage.' We have highlighted this section of our introduction in red text within our marked manuscript for clarity.

VERSION 3 – REVIEW

REVIEWER	Kelly Donkers Chatham University USA
REVIEW RETURNED	09-Dec-2019

GENERAL COMMENTS	I still don't think I could reproduce this study exactly because I don't know the exact questions that were asked at the beginning. It looks like there wasn't an exact set of the same questions asked but rather stems of themes that they elaborated on through a conversation. If this is the way it was done, and the other peer reviewers are okay with it, then okay. But I believe they need to state in the limitations that they did not ask the exact same set of questions but rather explored themes through a conversation, and it would be better to ask the exact same set of questions.

VERSION 3 – AUTHOR RESPONSE

Reviewer four

• As in previous reviews, reviewer 4 highlights concerns with 'reproducibility' of the work, given the semi-structured nature of the in depth one-to-one interviews. They suggest we add the fact a structured interview was not the method of choice to the limitations to this work. Respectfully, we have to disagree that this is a limitation to our work. As stated in all our previous cover letters for revisions to this work, qualitative research does not pay heed to the notion of 'replicability', as it acts in contradiction to its underlying paradigm (which, in this case is constructivism). There is a wealth of literature demonstrating that the quantitive notions of objectivity and replicability do not apply to qualitative research. (For one example, please see: Varpio, L., & Meyer, H. (2017). A Lesson From the Qualitative Rip Out Series: Let Go of Expectations for Universally Applicable "Gold Standards" for Qualitative Research. Journal of graduate medical education, 9(2), 154–156. doi:10.4300/JGME-D-17-00014.1). As such, it is not appropriate to describe our research in terms of 'replicability' of

questioning although, as previously requested, we have provided the semi-structured question stems used to guide the interviews. Semi-structured interviews were used, not fully structured interviews where each exact question could be detailed. This is a methodological choice to allow for responsive, more conversational data collection and facilitate rich data gathering. (Please see: DeJonckheere M, Vaughn LM. Semistructured interviewing in primary care research: a balance of relationship and rigour. Family Medicine and Community Health. 2019 Mar 1;7(2):e000057.) Semi-structured interviews are a well-established qualitative method and have been used within this work in accordance to guidance provided in the qualitative literature to gather rich data. This is a strength, not a limitation to this work. As such, detailing a robust methodological choice as a limitation here would be inappropriate.

VERSION 4 – REVIEW

REVIEWER	Kelly Donkers Chatham University USA
REVIEW RETURNED	16-Dec-2019

GENERAL COMMENTS	Thank you for the response. One of the questions that BMJ asks is if the study is reproducible. I do think there is value in the study the way that it is.